PROGRESS

OF

MEDICAL SCIENCE.

MEDICINE.

UNDER THE CHARGE OF

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The Chemistry of the Urine in Diseases of the Pancreas.—CAMMIDGE (*Lancet*, March 19, 1904, p. 782) during the last three years has been studying the urine of patients with pancreatic disease in order to determine whether it be possible to recognize lesions of the gland during life as well as to differentiate the character of the lesion. In this investigation he was associated with Mr. Mayo Robson, whose extensive experience in surgery of the pancreatic gland is well known.

As a result of his study, Cammidge claims that it is possible to definitely determine the presence of pancreatic disease from the urinary examination. This is dependent upon the presence of glycerin in the urine, and the urinary test is practically that for glycerose. He asserts that fat necrosis is almost invariably associated with obvious disease of the pancreas. Although it is most typically met with in acute and gangrenous pancreatitis, he believes that it is not improbable that similar but evident changes accompany all forms of pancreatic inflammation. The local fat necroses are dependent upon the fermentative action of the pancreatic secretion. The fat of the tissues is converted into the fatty acids which enter into combination with lime, the other constituent of the fat molecule, glycerin, being absorbed into the circulation. This glycerin is eventually eliminated in the urine, and becomes converted into glycerose when the urine is boiled with a mineral acid, such as hydrochloric acid.

Cammidge describes in detail two tests for glycerose which he terms reaction "A" and reaction "B." Both are modifications of the phenylhydrazine test for glucose. Reaction "A" is briefly as follows: Ten c.c. of filtered urine are poured into a flask; add 1 c.c. of hydrochloric acid; place a funnel in the neck of the flask to act as a condenser and boil gently on a sand-bath for ten minutes. Add 5 c.c. each of filtered urine and distilled water, and allow the whole to cool in running water. Neutralize the excess of acid by adding slowly 4 gm. of lead carbonate, and, after allowing to stand for a few minutes, filter through a moist filter paper, and wash out the flask on to the filter with 5 c.c. of distilled water. To the clear filtrate add 2 gm. of powdered sodium acetate and 0.75 gm. of phenylhydrazine hydrochlorate, and boil for three or four minutes on the sand-bath. Allow the contents of the flask to cool for twenty-four hours after pouring into a test-tube, and if pancreatic disease be present an abundant flocculent, yellow deposit collects at the bottom of the test-tube, which, when examined microscopically, is found to consist of sheaves and rosettes of yellow crystals. Before carrying out the test sugar must be examined for, and, if present, must be carefully removed by fermentation.

This reaction was not found entirely reliable, because the urine of patients suffering from certain diseases accompanied by active tissue changes, such as cancer, adenitis, pneumonia, etc., sometimes gave a positive result. Eventually reaction "B" was found to differentiate the pancreatic cases. This differentiating test depends upon the fact that the formation of the crystals described in reaction "A" is interfered with in inflammation of the pancreas by a preliminary treatment of the urine with perchloride of mercury, while such treatment does not affect the appearance of the crystals in cases of cancer of the pancreas and the other conditions which give rise to a positive reaction. By a combination of these two reactions Cammidge believes that it is possible to make a trustworthy diagnosis of pancreatic disease in most cases from the urine alone.

In reaction "B," 20 c.c. of filtered urine are thoroughly mixed with half its bulk of a saturated solution of perchloride of mercury. Allow to stand for a few minutes, filter, and to 10 c.c. of the filtrate 1 c.c. of strong hydrochloric acid is added. Boil for ten minutes on a sand-bath, and subsequently dilute with 5 c.c. of the filtrate from the mixed urine and perchloride of mercury and 10 c.c. of distilled water. Allow to cool, neutralize with 4 gm. of lead carbonate, and proceed from this point as in reaction "A."

The next step was to devise some means of differentiating the various forms of pancreatic disease, particularly chronic inflammation and cancer. It was at first thought that the mere size of the crystals would aid in differentiating the various pancreatic lesions. The crystals in malignant disease were, as a rule, coarser and broader than those in simple inflammation. Further, in simple inflammation the crystals from acute cases were, on the whole, somewhat finer than those seen in most instances of chronic inflammation. It was subsequently found that the solubility of the crystals proved more reliable than their size. If the crystals in reaction "A" be observed under the microscope while a 1:3 dilution of strong sulphuric acid is being irrigated under the cover-slip they will be seen to turn brown when the acid reaches them, and then to dissolve. Experience showed that the solubility of the crystals varied according to the length of duration and nature of the pancreatic disease.

Cammidge summarizes the practical results of urinary examinations in pancreatic disease by these methods as follows: 1. If no crystals are found by either the "A" or the "B" method the pancreas is not at fault, and some other explanation of the symptoms must be sought. 2. If crystals are obtained by the "A" method but not by the "B" reaction active inflammation of the pancreas is present, and surgical interference is indicated. (*a*) The crystals obtained by the "A" method will in acute inflammation dissolve in 33 per cent. sulphuric acid in about half a minute. (*b*) In chronic inflammation the crystals by the "A" method will take one or two minutes to disappear. 3. If crystals are found in preparations made by both the "A" and the "B" methods there may be (*a*) malignant disease of the pancreas, when the crystals will, as a rule, take from three to five minutes to dissolve, and operation is inadvisable; (*b*) a damaged pancreas due to past pancreatitis, when the crystals will dissolve in from one to two minutes; (*c*) some disease not connected with the pancreas, when the crystals will dissolve in about one minute. In the two latter, (*b*) and (*c*), the urgency of the symptoms and the condition of the patient must decide the need for an exploratory incision.

The writer believes that these methods are also going to be of service in differentiating pancreatic from non-pancreatic diabetes. This belief is based on practical experience with the test in one case of diabetes, which was subsequently shown at autopsy to be pancreatic in origin.

SURGERY.

UNDER THE CHARGE OF

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Osteoplastic Resection of the Symphysis.—MANZ (*Centralblatt für Chir.*, 1904, No. 15) states that the technique briefly consists in a skin incision which should be prolonged from either tubercle of the pubes downward. This incision should be continued downward until the angle of the pubic arch is reached, and all the parts should be freely dissected loose. Then by means of a wire saw the bone should be severed, the direction of the saw being in the direction of the obturator foramen; then taking a periosteal elevator the periosteum should be freely separated, the subsequent cutting of the bone being subperiosteal. By this means the contents of the lower pelvis are most accessible, and extirpation of the prostate or the urethra or the genital organs in women may be done with the greatest ease. When the operation is completed four wire sutures are amply sufficient to approximate the symphysis; then the incision of the skin should be closed in the usual manner.

A New Experiment in the Operative Treatment of Chronic Bright's Disease.—BAKES (*Centralblatt für Chir.*, 1904, No. 14) states that he has had such good results in one case treated by Edebohls' method that it demands to be published: The patient, a man, aged twenty-five years, had been under treatment for ten years in various hospitals